Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Water-Energy Nexus 3 (2020) 71

Contents lists available at ScienceDirect

Water-Energy Nexus

journal homepage: www.keaipublishing.com/en/journals/water-energy-nexus/

The role of peer review and science for advancing public understanding

We live in a time of rapid change. The Covid-19 pandemic has united the world to understand and develop solutions to protect the health and wellbeing of society. At the same time, access to information on the internet and social media has exploded. People are exposed to information with many claims. Some of the information is relevant and accurate. A significant fraction may be inaccurate, biased, and potentially dangerous. With Covid-19, the information might point to cures that are toxic or risks that are not relevant. The scientific community has developed a process to develop and convey knowledge. The validation of results and their interpretation is critical to advancing knowledge. The core of the scientific process is based on developing a hypothesis-driven concept, designing and executing an experimental approach to prove or disprove the hypothesis, conducting a statistical analysis of the results to confirm their validity, and interpreting their meaning and impact. When their work is completed the scientist prepares to publish the work. Publication requires peer review. Hypotheses, experimental approaches, results, and interpretation of results are independently and anonymously reviewed by a scientific peer. The reviewers are selected based on their expertise in the field. The peer review process is essential for the integrity of the scientific process. Without a robust scientific process, society cannot discriminate between validated results and interpretations and biased, inaccurate, and potentially dangerous conjecture. With inaccurate science society and policy makers may make poor decisions that could hurt people and the world around them.

While scientists should not censor information available to the public, scientists have a responsibility to inform the public. We must articulate what the scientific process is and why it is essential when considering the validity of information. Scientists are responsible for pointing out when public information has not been vetted through a scientific process and therefore cannot be considered conclusive. Scientists are responsible for highlighting information that has been generated and vetted with the scientific process. Over time, our goal is for the public to value the scientific process based on peer review. The public could become enlightened to the necessity for peer review to support decisions and action.

Scientists need to contribute to advancing public knowledge. When invited to serve as a peer reviewer, scientists have a responsibility to contribute to the process. We all are extremely busy making peer review a distraction. While peer review does not directly benefit our own work and career, it benefits our chosen field of science. This is very important for the research area that our journal, *Water-Energy Nexus*, is focusing on. We cover the convergence of science and technology integrating across large spatial ranges (micro to global) in environmental pollution and the balance of remediation issues with energy use. *Water-Energy Nexus* wants to provide scientists with a platform for scientific debate and discussion on this rich and complicated topic. With the manuscripts submitted to *WEN* cover integrated research topics across a broad range of subjects from environment sciences through energy engineering, the role of peer review is essential. Peer review on a new submission to *WEN* should not be biased towards a specific science field. It should be done considering the complex nature of issues in the water-energy nexus.

Scientists need to contribute to the public dialog. To accomplish these goals, we need to be honest, accurate, articulate, and use understandable language. The impact of *WEN* is very diverse affecting society in many ways. The scientific audience for WEN is diverse and readers may not fully understand the content of the papers outside their research expertise. Therefore, scientists, especially those who want to contribute to *WEN*, should work with communications specialists to convey message to benefit society. The audience includes the general public and researchers outside the author's core specialty. While the peer-reviewed journal article is the cornerstone of our careers and critical for advancing scientific knowledge, a general interest story could benefit society even more. The author cannot lose sight that our work has two audiences, the science community, and more importantly, our family, friends, neighbors, and policy makers.

Hyunook Kim [a]
Pen Chi Chiang [b]
Seth W. Snyder [c,*]
[a] *University of Seoul, Water-Energy Nexus, South Korea*
[b] *National Taiwan University, Water-Energy Nexus, Taiwan*
[c] *Idaho National Laboratory, Northwestern University, Water-Energy Nexus, United States*
* Corresponding author.
E-mail address: Seth.Snyder@inl.gov (S.W. Snyder)

Available online 15 May 2020

https://doi.org/10.1016/j.wen.2020.05.002